

49321-111.ST25.txt
SEQUENCE LISTING

<110> Oregon Health & Science University
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Fruh, Klaus
King, Jeffrey S.
Hicks, James B.
Raggo, Camilo
Nelson, Jay

<120> METHODS OF TREATMENT AND DIAGNOSIS OF KAPOSI'S SARCOMA (KS) AND
KS RELATED DISEASES

<130> 49321-111

<150> US 60/438,343
<151> 2003-01-06

<150> US 60/473,246
<151> 2003-05-22

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<170> PatentIn version 3.2

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Ser Asp Cys Ile Val Val Asp Thr Val Met Cys Pro Asn Met Pro Asn
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Lys Ser Val Leu Leu Tyr Thr Leu Ser Phe Ile Tyr Ile Phe Ile Phe
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Arg Arg Val Val Cys Ile Leu Val Trp Leu Leu Ala Phe Cys Val Ser
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Glu Thr Tyr Cys Arg Ser Phe Tyr Pro Glu His Ser Ile Lys Glu Trp
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Phe Ser Ile Ile Ala Val Phe Tyr Phe Leu Leu Ala Arg Ala Ile Ser
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Ala Ser Ser Asp Gln Glu Lys His Ser Ser Arg Lys Ile Ile Phe Ser
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Tyr Val Val Val Phe Leu Val Cys Trp Leu Pro Tyr His Val Ala Val
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Leu Glu His Ala Leu Phe Thr Ala Leu His Val Thr Gln Cys Leu Ser
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Leu Val His Cys Cys Val Asn Pro Val Leu Tyr Ser Phe Ile Asn Arg
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 Leu Ala Ala Cys Gly Pro Pro Pro Val Ala Pro Pro Ala Ala Val Ala
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 Ala Val Ala Gly Gly Ala Arg Met Pro Cys Ala Glu Leu Val Arg Glu
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 Pro Gly Cys Gly Cys Cys Ser Val Cys Ala Arg Leu Glu Gly Glu Ala
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 Cys Gly Val Tyr Thr Pro Arg Cys Gly Gln Gly Leu Arg Cys Tyr Pro
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 His Pro Gly Ser Glu Leu Pro Leu Gln Ala Leu Val Met Gly Glu Gly
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 Thr Cys Glu Lys Arg Arg Asp Ala Glu Tyr Gly Ala Ser Pro Glu Gln
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cgg	aag	ccc	ctc	aag	tcg	ggt	atg	aag	gag	ctg	gcc	gtg	ttc	cgg	gag		693
Arg	Lys	Pro	Leu	Lys	Ser	Gly	Met	Lys	Glu	Leu	Ala	Val	Phe	Arg	Glu		
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Gln	Arg	Met	Gln														
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 35 40 45

Arg Leu Ala Ala Cys Gly Pro Pro Pro Val Ala Pro Pro Ala Ala Val
 50 55 60

Ala Ala Val Ala Gly Gly Ala Arg Met Pro Cys Ala Glu Leu Val Arg
 65 70 75 80

Glu Pro Gly Cys Gly Cys Cys Ser Val Cys Ala Arg Leu Glu Gly Glu
 85 90 95

Ala Cys Gly Val Tyr Thr Pro Arg Cys Gly Gln Gly Leu Arg Cys Tyr
 100 105 110

Pro His Pro Gly Ser Glu Leu Pro Leu Gln Ala Leu Val Met Gly Glu
 115 120 125

Gly Thr Cys Glu Lys Arg Arg Asp Ala Glu Tyr Gly Ala Ser Pro Glu
 130 135 140

Gln Val Ala Asp Asn Gly Asp Asp His Ser Glu Gly Gly Leu Val Glu
 145 150 155 160

Asn His Val Asp Ser Thr Met Asn Met Leu Gly Gly Gly Gly Ser Ala
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Gly Arg Lys Pro Leu Lys Ser Gly Met Lys Glu Leu Ala Val Phe Arg
 180 185 190

Glu Lys Val Thr Glu Gln His Arg Gln Met Gly Lys Gly Gly Lys His
 195 200 205

His Leu Gly Leu Glu Glu Pro Lys Lys Leu Arg Pro Pro Pro Ala Arg
 210 215 220

Thr Pro Cys Gln Gln Glu Leu Asp Gln Val Leu Glu Arg Ile Ser Thr
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Met Arg Leu Pro Asp Glu Arg Gly Pro Leu Glu His Leu Tyr Ser Leu

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245

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His Ile Pro Asn Cys Asp Lys His Gly Leu Tyr Asn Leu Lys Gln Cys
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Asn Thr Gly Lys Leu Ile Gln Gly Ala Pro Thr Ile Arg Gly Asp Pro
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Arg Pro Gly Trp Leu Ala Leu Leu Leu Trp Val Ser Ala Leu Ser Cys
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Arg Thr Ser Tyr Asn Phe Gly Arg Thr Phe Leu Gly Leu Asp Lys Cys
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Ser Leu Leu Ser Tyr Pro Ala Asn Tyr Ser Asp Asp Ser Lys Ile Trp
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49321-111.ST25.txt

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 Met Ser Lys Leu
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aca tta tcc gaa ggc cat ccg gaa acg cca gtt gat ggg gac cta ggg 222
 Thr Leu Ser Glu Gly His Pro Glu Thr Pro Val Asp Gly Asp Leu Gly
 5 10 15 20

aag caa gat atc tgc tca tct gaa gcc tcg tgg ggt gat ttt gaa tat 270
 Lys Gln Asp Ile Cys Ser Ser Glu Ala Ser Trp Gly Asp Phe Glu Tyr
 25 30 35

gat gta atg ggc cag aat atc gat gaa gat tta ctg aga gag cct gaa 318
 Asp Val Met Gly Gln Asn Ile Asp Glu Asp Leu Leu Arg Glu Pro Glu
 40 45 50

cac ttc ctg tat ggt ggt gac cct cct ttg gag gaa gat tct ctg aag 366
 His Phe Leu Tyr Gly Gly Asp Pro Pro Leu Glu Glu Asp Ser Leu Lys
 55 60 65

cag tcg ctg gca ccg tac aca cct ccc ttt gat ttg tct tat ctc aca 414
 Gln Ser Leu Ala Pro Tyr Thr Pro Pro Phe Asp Leu Ser Tyr Leu Thr
 70 75 80

gaa cct gcc cag agt gct gaa aca ata gag gaa gct ggg tct cca gag 462
 Glu Pro Ala Gln Ser Ala Glu Thr Ile Glu Glu Ala Gly Ser Pro Glu
 85 90 95 100

gat gaa tct ctg gga tgc aga gca gca gag ata gtg ctt tct gca ctt 510
 Asp Glu Ser Leu Gly Cys Arg Ala Ala Glu Ile Val Leu Ser Ala Leu
 105 110 115

cct gat cga aga agt gag gga aac cag gct gag acc aaa aac aga ctg 558
 Pro Asp Arg Arg Ser Glu Gly Asn Gln Ala Glu Thr Lys Asn Arg Leu
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49321-111.ST25.txt

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gtt gac tgg gaa gta gaa aca gat aat tct gat tta cca gca ggt gga Val Asp Trp Glu Val Glu Thr Asp Asn Ser Asp Leu Pro Ala Gly Gly 165 170 175 180	702
gac ata gga cca cca aat ggt gcc agc aag gaa ata tca gaa ttg gaa Asp Ile Gly Pro Pro Asn Gly Ala Ser Lys Glu Ile Ser Glu Leu Glu 185 190 195	750
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tac aag gaa gaa aga tgt aca gag aag aat gaa gat cgt cat gca cta Tyr Lys Glu Glu Arg Cys Thr Glu Lys Asn Glu Asp Arg His Ala Leu 215 220 225	846
cac atg gat tac ata ctt gta aac cgt gaa gaa aat tca cac tca aag His Met Asp Tyr Ile Leu Val Asn Arg Glu Glu Asn Ser His Ser Lys 230 235 240	894
cca gag acc tgt gaa gaa aga gaa agc ata gct gaa tta gaa ttg tat Pro Glu Thr Cys Glu Glu Arg Glu Ser Ile Ala Glu Leu Glu Leu Tyr 245 250 255 260	942
gta ggt tcc aaa gaa aca ggg ctg cag gga act cag tta gca agc ttc Val Gly Ser Lys Glu Thr Gly Leu Gln Gly Thr Gln Leu Ala Ser Phe 265 270 275	990
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gca gag aaa atg tct tct aaa agc gat acg aga tca tct ttt gaa agc Ala Glu Lys Met Ser Ser Lys Ser Asp Thr Arg Ser Ser Phe Glu Ser 295 300 305	1086
cct gca caa gac cag agt tgg atg ttc ttg ggc cat agt gag gtt ggt Pro Ala Gln Asp Gln Ser Trp Met Phe Leu Gly His Ser Glu Val Gly 310 315 320	1134
gat cca tca ctg gat gcc agg gac tca ggg cct ggg tgg tct ggc aag Asp Pro Ser Leu Asp Ala Arg Asp Ser Gly Pro Gly Trp Ser Gly Lys 325 330 335 340	1182
act gtg gag ccg ttc tct gaa ctc ggc ttg ggt gag ggt ccc cag ctg Thr Val Glu Pro Phe Ser Glu Leu Gly Leu Gly Glu Gly Pro Gln Leu 345 350 355	1230
cag att ctg gaa gaa atg aag cct cta gaa tct ttg gca cta gag gaa Gln Ile Leu Glu Glu Met Lys Pro Leu Glu Ser Leu Ala Leu Glu Glu 360 365 370	1278
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49321-111.ST25.txt

375	380	385	
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Ala Gly Pro Asp Ala Val Thr Leu Gln Ala Val Thr His Asp Asn Glu			
390	395	400	
tgg gaa atg ctt tca cca cag cct gtt cag aaa aac atg atc cct gac			1422
Trp Glu Met Leu Ser Pro Gln Pro Val Gln Lys Asn Met Ile Pro Asp			
405	410	415	420
acg gaa atg gag gag gag aca gag ttc ctt gag ctc gga acc agg ata			1470
Thr Glu Met Glu Glu Glu Thr Glu Phe Leu Glu Leu Gly Thr Arg Ile			
425	430	435	
tca aga cca aat gga cta ctg tca gag gat gta gga atg gac atc ccc			1518
Ser Arg Pro Asn Gly Leu Leu Ser Glu Asp Val Gly Met Asp Ile Pro			
440	445	450	
ttt gaa gag ggc gtg ctg agt ccc agt gct gca gac atg agg cct gaa			1566
Phe Glu Glu Gly Val Leu Ser Pro Ser Ala Ala Asp Met Arg Pro Glu			
455	460	465	
cct cct aat tct ctg gat ctt aat gac act cat cct cgg aga atc aag			1614
Pro Pro Asn Ser Leu Asp Leu Asn Asp Thr His Pro Arg Arg Ile Lys			
470	475	480	
ctc aca gcc cca aat atc aat ctt tct ctg gac caa agt gaa gga tct			1662
Leu Thr Ala Pro Asn Ile Asn Leu Ser Leu Asp Gln Ser Glu Gly Ser			
485	490	495	500
att ctc tct gat gat aac ttg gac agt cca gat gaa att gac atc aat			1710
Ile Leu Ser Asp Asp Asn Leu Asp Ser Pro Asp Glu Ile Asp Ile Asn			
505	510	515	
gtg gat gaa ctt gat acc ccc gat gaa gca gat tct ttt gag tac act			1758
Val Asp Glu Leu Asp Thr Pro Asp Glu Ala Asp Ser Phe Glu Tyr Thr			
520	525	530	
ggc cat gat ccc aca gcc aac aaa gat tct ggc caa gag tca gag tct			1806
Gly His Asp Pro Thr Ala Asn Lys Asp Ser Gly Gln Glu Ser Glu Ser			
535	540	545	
att cca gaa tat acg gcc gaa gag gaa cgg gag gac aac cgg ctt tgg			1854
Ile Pro Glu Tyr Thr Ala Glu Glu Glu Arg Glu Asp Asn Arg Leu Trp			
550	555	560	
agg aca gtg gtc att gga gaa caa gag cag cgc att gac atg aag gtc			1902
Arg Thr Val Val Ile Gly Glu Gln Glu Gln Arg Ile Asp Met Lys Val			
565	570	575	580
atc gag ccc tac agg aga gtc att tct cac gga gga tac tat ggg gac			1950
Ile Glu Pro Tyr Arg Arg Val Ile Ser His Gly Gly Tyr Tyr Gly Asp			
585	590	595	
ggt cta aat gcc atc att gtg ttt gcc gcc tgt ttt ctg cca gac agc			1998
Gly Leu Asn Ala Ile Ile Val Phe Ala Ala Cys Phe Leu Pro Asp Ser			
600	605	610	
agt cgg gcg gat tac cac tat gtc atg gaa aat ctt ttc cta tat gta			2046
Ser Arg Ala Asp Tyr His Tyr Val Met Glu Asn Leu Phe Leu Tyr Val			
615	620	625	
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49321-111.ST25.txt

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Lys Lys Cys Tyr Gln Met Ile Asp Arg Arg Leu Arg Lys Asn Leu Lys	
665 670 675	
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Ser Phe Ile Ile Val His Pro Ser Trp Phe Ile Arg Thr Ile Leu Ala	
680 685 690	
gtg aca cga cct ttt ata agt tca aaa ttc agc agt aaa att aaa tat	2286
Val Thr Arg Pro Phe Ile Ser Ser Lys Phe Ser Ser Lys Ile Lys Tyr	
695 700 705	
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Val Asn Ser Leu Ser Glu Leu Ser Gly Leu Ile Pro Met Asp Cys Ile	
710 715 720	
cac att cca gag agc atc atc aaa ctg gat gaa gaa ctg agg gaa gca	2382
His Ile Pro Glu Ser Ile Ile Lys Leu Asp Glu Glu Leu Arg Glu Ala	
725 730 735 740	
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Ser Glu Ala Ala Lys Thr Ser Cys Leu Tyr Asn Asp Pro Glu Met Ser	
745 750 755	
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49321-111.ST25.txt

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49321-111.ST25.txt

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<212> PRT
<213> homo sapiens

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<400> 8

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Gly Asp Leu Gly Lys Gln Asp Ile Cys Ser Ser Glu Ala Ser Trp Gly
20          25          30

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Asp Phe Glu Tyr Asp Val Met Gly Gln Asn Ile Asp Glu Asp Leu Leu
35          40          45

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Arg Glu Pro Glu His Phe Leu Tyr Gly Gly Asp Pro Pro Leu Glu Glu
50          55          60

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Asp Ser Leu Lys Gln Ser Leu Ala Pro Tyr Thr Pro Pro Phe Asp Leu
65          70          75          80

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```

Ser Tyr Leu Thr Glu Pro Ala Gln Ser Ala Glu Thr Ile Glu Glu Ala
85          90          95

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Gly Ser Pro Glu Asp Glu Ser Leu Gly Cys Arg Ala Ala Glu Ile Val
100          105          110

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Leu Ser Ala Leu Pro Asp Arg Arg Ser Glu Gly Asn Gln Ala Glu Thr
115          120          125

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Lys Asn Arg Leu Pro Gly Ser Gln Leu Ala Val Leu His Ile Arg Glu
130          135          140

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Asp Pro Glu Ser Val Tyr Leu Pro Val Gly Ala Gly Ser Asn Ile Leu
145          150          155          160

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49321-111.ST25.txt

Ser Pro Ser Asn Val Asp Trp Glu Val Glu Thr Asp Asn Ser Asp Leu
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Pro Ala Gly Gly Asp Ile Gly Pro Pro Asn Gly Ala Ser Lys Glu Ile
 180 185 190

Ser Glu Leu Glu Glu Glu Lys Thr Ile Pro Thr Lys Glu Pro Glu Gln
 195 200 205

Ile Lys Ser Glu Tyr Lys Glu Glu Arg Cys Thr Glu Lys Asn Glu Asp
 210 215 220

Arg His Ala Leu His Met Asp Tyr Ile Leu Val Asn Arg Glu Glu Asn
 225 230 235 240

Ser His Ser Lys Pro Glu Thr Cys Glu Glu Arg Glu Ser Ile Ala Glu
 245 250 255

Leu Glu Leu Tyr Val Gly Ser Lys Glu Thr Gly Leu Gln Gly Thr Gln
 260 265 270

Leu Ala Ser Phe Pro Asp Thr Cys Gln Pro Ala Ser Leu Asn Glu Arg
 275 280 285

Lys Gly Leu Ser Ala Glu Lys Met Ser Ser Lys Ser Asp Thr Arg Ser
 290 295 300

Ser Phe Glu Ser Pro Ala Gln Asp Gln Ser Trp Met Phe Leu Gly His
 305 310 315 320

Ser Glu Val Gly Asp Pro Ser Leu Asp Ala Arg Asp Ser Gly Pro Gly
 325 330 335

Trp Ser Gly Lys Thr Val Glu Pro Phe Ser Glu Leu Gly Leu Gly Glu
 340 345 350

Gly Pro Gln Leu Gln Ile Leu Glu Glu Met Lys Pro Leu Glu Ser Leu
 355 360 365

Ala Leu Glu Glu Ala Ser Gly Pro Val Ser Gln Ser Gln Lys Ser Lys
 370 375 380

Ser Arg Gly Arg Ala Gly Pro Asp Ala Val Thr Leu Gln Ala Val Thr
 385 390 395 400

His Asp Asn Glu Trp Glu Met Leu Ser Pro Gln Pro Val Gln Lys Asn

49321-111.ST25.txt
410

405

415

Met Ile Pro Asp Thr Glu Met Glu Glu Glu Thr Glu Phe Leu Glu Leu
420 425 430

Gly Thr Arg Ile Ser Arg Pro Asn Gly Leu Leu Ser Glu Asp Val Gly
435 440 445

Met Asp Ile Pro Phe Glu Glu Gly Val Leu Ser Pro Ser Ala Ala Asp
450 455 460

Met Arg Pro Glu Pro Pro Asn Ser Leu Asp Leu Asn Asp Thr His Pro
465 470 475 480

Arg Arg Ile Lys Leu Thr Ala Pro Asn Ile Asn Leu Ser Leu Asp Gln
485 490 495

Ser Glu Gly Ser Ile Leu Ser Asp Asp Asn Leu Asp Ser Pro Asp Glu
500 505 510

Ile Asp Ile Asn Val Asp Glu Leu Asp Thr Pro Asp Glu Ala Asp Ser
515 520 525

Phe Glu Tyr Thr Gly His Asp Pro Thr Ala Asn Lys Asp Ser Gly Gln
530 535 540

Glu Ser Glu Ser Ile Pro Glu Tyr Thr Ala Glu Glu Glu Arg Glu Asp
545 550 555 560

Asn Arg Leu Trp Arg Thr Val Val Ile Gly Glu Gln Glu Gln Arg Ile
565 570 575

Asp Met Lys Val Ile Glu Pro Tyr Arg Arg Val Ile Ser His Gly Gly
580 585 590

Tyr Tyr Gly Asp Gly Leu Asn Ala Ile Ile Val Phe Ala Ala Cys Phe
595 600 605

Leu Pro Asp Ser Ser Arg Ala Asp Tyr His Tyr Val Met Glu Asn Leu
610 615 620

Phe Leu Tyr Val Ile Ser Thr Leu Glu Leu Met Val Ala Glu Asp Tyr
625 630 635 640

Met Ile Val Tyr Leu Asn Gly Ala Thr Pro Arg Arg Arg Met Pro Gly
645 650 655

49321-111.ST25.txt

Leu Gly Trp Met Lys Lys Cys Tyr Gln Met Ile Asp Arg Arg Leu Arg
 660 665 670

Lys Asn Leu Lys Ser Phe Ile Ile Val His Pro Ser Trp Phe Ile Arg
 675 680 685

Thr Ile Leu Ala Val Thr Arg Pro Phe Ile Ser Ser Lys Phe Ser Ser
 690 695 700

Lys Ile Lys Tyr Val Asn Ser Leu Ser Glu Leu Ser Gly Leu Ile Pro
 705 710 715 720

Met Asp Cys Ile His Ile Pro Glu Ser Ile Ile Lys Leu Asp Glu Glu
 725 730 735

Leu Arg Glu Ala Ser Glu Ala Ala Lys Thr Ser Cys Leu Tyr Asn Asp
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Pro Glu Met Ser Ser Met Glu Lys Asp Ile Asp Leu Lys Leu Lys Glu
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Lys Pro
 770

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 Met Gly Leu
 1
 aag ttg aac ggc aga tat att tca ctg atc ctc gcg gtg caa ata gcg 225
 Lys Leu Asn Gly Arg Tyr Ile Ser Leu Ile Leu Ala Val Gln Ile Ala
 5 10 15
 tat ctg gtg cag gcc gtg aga gca gcg ggc aag tgc gat gcg gtc ttc 273
 Tyr Leu Val Gln Ala Val Arg Ala Ala Gly Lys Cys Asp Ala Val Phe
 20 25 30 35
 aag ggc ttt tcg gac tgt ttg ctc aag ctg ggc gac agc atg gcc aac 321
 Lys Gly Phe Ser Asp Cys Leu Leu Lys Leu Gly Asp Ser Met Ala Asn
 40 45 50

49321-111.ST25.txt

tac ccg cag ggc ctg gac gac aag	acg aac atc aag acc	gtg tgc aca	369
Tyr Pro Gln Gly Leu Asp Asp Lys	Thr Asn Ile Lys Thr	Val Cys Thr	
55	60	65	
tac tgg gag gat ttc cac agc tgc	acg gtc aca gcc ctt	acg gat tgc	417
Tyr Trp Glu Asp Phe His Ser Cys	Thr Val Thr Ala Leu Thr	Asp Cys	
70	75	80	
cag gaa ggg gcg aaa gat atg tgg	gat aaa ctg aga aaa gaa tcc aaa		465
Gln Glu Gly Ala Lys Asp Met Trp	Asp Lys Leu Arg Lys Glu Ser Lys		
85	90	95	
aac ctc aac atc caa ggc agc tta ttc	gaa ctc tgc ggc agc ggc aac		513
Asn Leu Asn Ile Gln Gly Ser Leu	Phe Glu Leu Cys Gly Ser Gly Asn		
100	105	110	115
ggg gcg gcg ggg tcc ctg ctc ccg	gcg ttc ccg gtg ctc ctg gtg tct		561
Gly Ala Ala Gly Ser Leu Leu Pro	Ala Phe Pro Val Leu Leu Val Ser		
120	125	130	
ctc tcg gca gct tta gcg acc tgg	ctt tcc ttc tga gcgtggggcc		607
Leu Ser Ala Ala Leu Ala Thr Trp	Leu Ser Phe		
135	140		
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49321-111.ST25.txt

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 20 25 30

Ala Val Phe Lys Gly Phe Ser Asp Cys Leu Leu Lys Leu Gly Asp Ser
 35 40 45

Met Ala Asn Tyr Pro Gln Gly Leu Asp Asp Lys Thr Asn Ile Lys Thr
 50 55 60

Val Cys Thr Tyr Trp Glu Asp Phe His Ser Cys Thr Val Thr Ala Leu
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Glu Ser Lys Asn Leu Asn Ile Gln Gly Ser Leu Phe Glu Leu Cys Gly
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 Gly Gly Arg Arg Gly Ala Ala Ala Pro Leu Leu Val Ala Val Ala
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 Ala Leu Leu Leu Gly Ala Ala Gly His Leu Tyr Pro Gly Glu Val Cys
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Asn Cys Ser Val Ile Glu Gly His Leu Gln Ile Leu Leu Met Phe Lys		
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acg agg ccc gaa gat ttc cga gac ctc agt ttc ccc aaa ctc atc atg		297
Thr Arg Pro Glu Asp Phe Arg Asp Leu Ser Phe Pro Lys Leu Ile Met		
70	75	80
atc act gat tac ttg ctg ctc ttc cgg gtc tat ggg ctc gag agc ctg		345
Ile Thr Asp Tyr Leu Leu Leu Phe Arg Val Tyr Gly Leu Glu Ser Leu		
85	90	95
aag gac ctg ttc ccc aac ctc acg gtc atc cgg gga tca cga ctg ttc		393
Lys Asp Leu Phe Pro Asn Leu Thr Val Ile Arg Gly Ser Arg Leu Phe		
100	105	110
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Phe Asn Tyr Ala Leu Val Ile Phe Glu Met Val His Leu Lys Glu Leu		
120	125	130
ggc ctc tac aac ctg atg aac atc acc cgg ggt tct gtc cgc atc gag		489
Gly Leu Tyr Asn Leu Met Asn Ile Thr Arg Gly Ser Val Arg Ile Glu		
135	140	145
aag aac aat gag ctc tgt tac ttg gcc act atc gac tgg tcc cgt atc		537
Lys Asn Asn Glu Leu Cys Tyr Leu Ala Thr Ile Asp Trp Ser Arg Ile		
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Leu Asp Ser Val Glu Asp Asn Tyr Ile Val Leu Asn Lys Asp Asp Asn		
165	170	175
gag gag tgt gga gac atc tgt ccg ggt acc gcg aag ggc aag acc aac		633
Glu Glu Cys Gly Asp Ile Cys Pro Gly Thr Ala Lys Gly Lys Thr Asn		
180	185	190
tgc ccc gcc acc gtc atc aac ggg cag ttt gtc gaa cga tgt tgg act		681
Cys Pro Ala Thr Val Ile Asn Gly Gln Phe Val Glu Arg Cys Trp Thr		
200	205	210
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His Ser His Cys Gln Lys Val Cys Pro Thr Ile Cys Lys Ser His Gly		
215	220	225
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Cys Thr Ala Glu Gly Leu Cys Cys His Ser Glu Cys Leu Gly Asn Cys		
230	235	240
tct cag ccc gac gac ccc acc aag tgc gtg gcc tgc cgc aac ttc tac		825
Ser Gln Pro Asp Asp Pro Thr Lys Cys Val Ala Cys Arg Asn Phe Tyr		
245	250	255
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Leu Asp Gly Arg Cys Val Glu Thr Cys Pro Pro Pro Tyr Tyr His Phe		
260	265	270
cag gac tgg cgc tgt gtg aac ttc agc ttc tgc cag gac ctg cac cac		921
Gln Asp Trp Arg Cys Val Asn Phe Ser Phe Cys Gln Asp Leu His His		
280	285	290

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aac aac aag tgc atc cct gag tgt	ccc tcc ggg tac acg atg aat tcc	1017	
Asn Asn Lys Cys Ile Pro Glu Cys	Pro Ser Gly Tyr Thr Met Asn Ser		
310	315 320		
agc aac ttg ctg tgc acc cca tgc	ctg ggt ccc tgt ccc aag gtg tgc	1065	
Ser Asn Leu Leu Cys Thr Pro Cys	Leu Gly Pro Cys Pro Lys Val Cys		
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His Leu Leu Glu Gly Glu Lys Thr	Ile Asp Ser Val Thr Ser Ala Gln		
340	345 350 355		
gag ctc cga gga tgc acc gtc atc	aac ggg agt ctg atc atc aac att	1161	
Glu Leu Arg Gly Cys Thr Val Ile	Asn Gly Ser Leu Ile Ile Asn Ile		
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Arg Gly Gly Asn Asn Leu Ala Ala	Glu Leu Glu Ala Asn Leu Gly Leu		
375	380 385		
att gaa gaa att tca ggg tat cta	aaa atc cgc cga tcc tac gct ctg	1257	
Ile Glu Glu Ile Ser Gly Tyr Leu	Lys Ile Arg Arg Ser Tyr Ala Leu		
390	395 400		
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Val Ser Leu Ser Phe Phe Arg Lys	Leu Arg Leu Ile Arg Gly Glu Thr		
405	410 415		
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Leu Glu Ile Gly Asn Tyr Ser Phe	Tyr Ala Leu Asp Asn Gln Asn Leu		
420	425 430 435		
agg cag ctc tgg gac tgg agc aaa	cac aac ctc acc atc act cag ggg	1401	
Arg Gln Leu Trp Asp Trp Ser Lys	His Asn Leu Thr Ile Thr Gln Gly		
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Lys Leu Phe Phe His Tyr Asn Pro	Lys Leu Cys Leu Ser Glu Ile His		
455	460 465		
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Lys Met Glu Glu Val Ser Gly Thr	Lys Gly Arg Gln Glu Arg Asn Asp		
470	475 480		
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Ile Ala Leu Lys Thr Asn Gly Asp	Gln Ala Ser Cys Glu Asn Glu Leu		
485	490 495		
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Trp Glu Pro Tyr Trp Pro Pro Asp	Phe Arg Asp Leu Leu Gly Phe Met		
520	525 530		
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cag gat gca tgt ggt tcc aac agt tgg acg gtg gta gac att gac cca Gln Asp Ala Cys Gly Ser Asn Ser Trp Thr Val Val Asp Ile Asp Pro 550 555 560	1737
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ctg gtc acc ttt tcg gat gaa cgc cgg acc tat ggg gcc aag agt gac Leu Val Thr Phe Ser Asp Glu Arg Arg Thr Tyr Gly Ala Lys Ser Asp 600 605 610	1881
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cca atc tca gtg tct aac tca tca tcc cag att att ctg aag tgg aaa Pro Ile Ser Val Ser Asn Ser Ser Ser Gln Ile Ile Leu Lys Trp Lys 630 635 640	1977
cca ccc tcc gac ccc aat ggc aac atc acc cac tac ctg gtt ttc tgg Pro Pro Ser Asp Pro Asn Gly Asn Ile Thr His Tyr Leu Val Phe Trp 645 650 655	2025
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aaa ggg ctg aag ctg ccc tcg agg acc tgg tct cca cca ttc gag tct Lys Gly Leu Lys Leu Pro Ser Arg Thr Trp Ser Pro Pro Phe Glu Ser 680 685 690	2121
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aac aac gtc gtc cac ttg atg tgg cag gag ccg aag gag ccc aat ggt Asn Asn Val Val His Leu Met Trp Gln Glu Pro Lys Glu Pro Asn Gly 855 860 865			2649
ctg atc gtg ctg tat gaa gtg agt tat cgg cga tat ggt gat gag gag Leu Ile Val Leu Tyr Glu Val Ser Tyr Arg Arg Tyr Gly Asp Glu Glu 870 875 880			2697
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cgc gtg gcg gtg aag acg gtc aac gag tca gcc agt ctc cga gag			3213

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Cys His His Val Val Arg Leu Leu Gly Val Val Ser Lys Gly Gln	
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Asp Met Trp Ser Phe Gly Val Val Leu Trp Glu Ile Thr Ser Leu	
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Glu Asn Lys Ala Pro	Glu Ser Glu Glu Leu	Glu Met Glu Phe Glu	
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gac atg gag aat gtg	ccc ctg gac cgt tcc	tcg cac tgt cag agg	4023
Asp Met Glu Asn Val	Pro Leu Asp Arg Ser	Ser His Cys Gln Arg	
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Arg Ser Tyr Glu Glu	His Ile Pro Tyr Thr	His Met Asn Gly Gly	
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35           40           45

Glu Leu Glu Asn Cys Ser Val Ile Glu Gly His Leu Gln Ile Leu Leu
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Leu Ile Met Ile Thr Asp Tyr Leu Leu Leu Phe Arg Val Tyr Gly Leu
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130          135          140

Arg Ile Glu Lys Asn Asn Glu Leu Cys Tyr Leu Ala Thr Ile Asp Trp
145          150          155          160

Ser Arg Ile Leu Asp Ser Val Glu Asp Asn Tyr Ile Val Leu Asn Lys
165          170          175

Asp Asp Asn Glu Glu Cys Gly Asp Ile Cys Pro Gly Thr Ala Lys Gly
180          185          190

Lys Thr Asn Cys Pro Ala Thr Val Ile Asn Gly Gln Phe Val Glu Arg
195          200          205

Cys Trp Thr His Ser His Cys Gln Lys Val Cys Pro Thr Ile Cys Lys
210          215          220

Ser His Gly Cys Thr Ala Glu Gly Leu Cys Cys His Ser Glu Cys Leu
225          230          235          240

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Asn Phe Tyr Leu Asp Gly Arg Cys Val Glu Thr Cys Pro Pro Pro Tyr
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Tyr His Phe Gln Asp Trp Arg Cys Val Asn Phe Ser Phe Cys Gln Asp
 275 280 285

Leu His His Lys Cys Lys Asn Ser Arg Arg Gln Gly Cys His Gln Tyr
 290 295 300

Val Ile His Asn Asn Lys Cys Ile Pro Glu Cys Pro Ser Gly Tyr Thr
 305 310 315 320

Met Asn Ser Ser Asn Leu Leu Cys Thr Pro Cys Leu Gly Pro Cys Pro
 325 330 335

Lys Val Cys His Leu Leu Glu Gly Glu Lys Thr Ile Asp Ser Val Thr
 340 345 350

Ser Ala Gln Glu Leu Arg Gly Cys Thr Val Ile Asn Gly Ser Leu Ile
 355 360 365

Ile Asn Ile Arg Gly Gly Asn Asn Leu Ala Ala Glu Leu Glu Ala Asn
 370 375 380

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 385 390 395 400

Tyr Ala Leu Val Ser Leu Ser Phe Phe Arg Lys Leu Arg Leu Ile Arg
 405 410 415

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Gln Asn Leu Arg Gln Leu Trp Asp Trp Ser Lys His Asn Leu Thr Ile
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Thr Gln Gly Lys Leu Phe Phe His Tyr Asn Pro Lys Leu Cys Leu Ser
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Arg Asn Asp Ile Ala Leu Lys Thr Asn Gly Asp Gln Ala Ser Cys Glu

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490

485

495

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515 520 525

Gly Phe Met Leu Phe Tyr Lys Glu Ala Pro Tyr Gln Asn Val Thr Glu
530 535 540

Phe Asp Gly Gln Asp Ala Cys Gly Ser Asn Ser Trp Thr Val Val Asp
545 550 555 560

Ile Asp Pro Pro Leu Arg Ser Asn Asp Pro Lys Ser Gln Asn His Pro
565 570 575

Gly Trp Leu Met Arg Gly Leu Lys Pro Trp Thr Gln Tyr Ala Ile Phe
580 585 590

Val Lys Thr Leu Val Thr Phe Ser Asp Glu Arg Arg Thr Tyr Gly Ala
595 600 605

Lys Ser Asp Ile Ile Tyr Val Gln Thr Asp Ala Thr Asn Pro Ser Val
610 615 620

Pro Leu Asp Pro Ile Ser Val Ser Asn Ser Ser Ser Gln Ile Ile Leu
625 630 635 640

Lys Trp Lys Pro Pro Ser Asp Pro Asn Gly Asn Ile Thr His Tyr Leu
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660 665 670

Tyr Cys Leu Lys Gly Leu Lys Leu Pro Ser Arg Thr Trp Ser Pro Pro
675 680 685

Phe Glu Ser Glu Asp Ser Gln Lys His Asn Gln Ser Glu Tyr Glu Asp
690 695 700

Ser Ala Gly Glu Cys Cys Ser Cys Pro Lys Thr Asp Ser Gln Ile Leu
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Lys Glu Leu Glu Glu Ser Ser Phe Arg Lys Thr Phe Glu Asp Tyr Leu
725 730 735

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His Asn Val Val Phe Val Pro Arg Pro Ser Arg Lys Arg Arg Ser Leu
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 755 760 765

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 770 775 780

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Arg His Phe Thr Gly Tyr Arg Ile Glu Leu Gln Ala Cys Asn Gln Asp
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Thr Pro Glu Glu Arg Cys Ser Val Ala Ala Tyr Val Ser Ala Arg Thr
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Ile Phe Glu Asn Asn Val Val His Leu Met Trp Gln Glu Pro Lys Glu
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Pro Asn Gly Leu Ile Val Leu Tyr Glu Val Ser Tyr Arg Arg Tyr Gly
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Asp Glu Glu Leu His Leu Cys Val Ser Arg Lys His Phe Ala Leu Glu
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Arg Gly Cys Arg Leu Arg Gly Leu Ser Pro Gly Asn Tyr Ser Val Arg
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Ile Arg Ala Thr Ser Leu Ala Gly Asn Gly Ser Trp Thr Glu Pro Thr
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Tyr Phe Tyr Val Thr Asp Tyr Leu Asp Val Pro Ser Asn Ile Ala Lys
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Ile Ile Ile Gly Pro Leu Ile Phe Val Phe Leu Phe Ser Val Val Ile
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Gly Ser Ile Tyr Leu Phe Leu Arg Lys Arg Gln Pro Asp Gly Pro Leu
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Gly Pro Leu Tyr Ala Ser Ser Asn Pro Glu Tyr Leu Ser Ala Ser Asp
 980 985 990

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Val Phe Pro Cys Ser Val Tyr Val Pro Asp Glu Trp Glu Val Ser Arg
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Glu Lys Ile Thr Leu Leu Arg Glu Leu Gly Gln Gly Ser Phe Gly
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Met Val Tyr Glu Gly Asn Ala Arg Asp Ile Ile Lys Gly Glu Ala
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Glu Thr Arg Val Ala Val Lys Thr Val Asn Glu Ser Ala Ser Leu
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Phe Thr Cys His His Val Val Arg Leu Leu Gly Val Val Ser Lys
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Gly Gln Pro Thr Leu Val Val Met Glu Leu Met Ala His Gly Asp
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Leu Lys Ser Tyr Leu Arg Ser Leu Arg Pro Glu Ala Glu Asn Asn
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Pro Gly Arg Pro Pro Pro Thr Leu Gln Glu Met Ile Gln Met Ala
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Ala Glu Ile Ala Asp Gly Met Ala Tyr Leu Asn Ala Lys Lys Phe
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Val His Arg Asp Leu Ala Ala Arg Asn Cys Met Val Ala His Asp
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Glu Thr Asp Tyr Tyr Arg Lys Gly Gly Lys Gly Leu Leu Pro Val
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Arg Trp Met Ala Pro Glu Ser Leu Lys Asp Gly Val Phe Thr Thr
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Ser Ser Asp Met Trp Ser Phe Gly Val Val Leu Trp Glu Ile Thr
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Ser Leu Ala Glu Gln Pro Tyr Gln Gly Leu Ser Asn Glu Gln Val
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49321-111.ST25.txt

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<223> G and T alleles exist at this position

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Leu Cys Val Leu Leu Leu Leu Arg Val Gln Thr Gly Ser Ser Gln
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cca tct gtg agt cca ggg gaa ccg tct cca cca tcc atc cat cca gga      147
Pro Ser Val Ser Pro Gly Glu Pro Ser Pro Pro Ser Ile His Pro Gly
                30                    35                      40

aaa tca gac tta ata gtc cgc gtg ggc gac gag att agg ctg tta tgc      195
Lys Ser Asp Leu Ile Val Arg Val Gly Asp Glu Ile Arg Leu Leu Cys
                45                    50                      55

act gat ccg ggc ttt gtc aaa tgg act ttt gag atc ctg gat gaa acg      243
Thr Asp Pro Gly Phe Val Lys Trp Thr Phe Glu Ile Leu Asp Glu Thr
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aat gag aat aag cag aat gaa tgg atc acg gaa aag gca gaa gcc acc      291
Asn Glu Asn Lys Gln Asn Glu Trp Ile Thr Glu Lys Ala Glu Ala Thr
                75                    80                      85                      90

aac acc ggc aaa tac acg tgc acc aac aaa cac ggc tta agc aat tcc      339
Asn Thr Gly Lys Tyr Thr Cys Thr Asn Lys His Gly Leu Ser Asn Ser
                95                    100                   105

att tat gtg ttt gtt aga gat cct gcc aag ctt ttc ctt gtt gac cgc      387
Ile Tyr Val Phe Val Arg Asp Pro Ala Lys Leu Phe Leu Val Asp Arg
                110                   115                   120

tcc ttg tat ggg aaa gaa gac aac gac acg ctg gtc cgc tgt cct ctc      435
Ser Leu Tyr Gly Lys Glu Asp Asn Asp Thr Leu Val Arg Cys Pro Leu
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aca gac cca gaa gtg acc aat tat tcc ctc aag ggg tgc cag ggg aag      483
Thr Asp Pro Glu Val Thr Asn Tyr Ser Leu Lys Gly Cys Gln Gly Lys
                140                   145                   150

cct ctt ccc aag gac ttg agg ttt att cct gac ccc aag gcg ggc atc      531
Pro Leu Pro Lys Asp Leu Arg Phe Ile Pro Asp Pro Lys Ala Gly Ile
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atg atc aaa agt gtg aaa cgc gcc tac cat cgg ctc tgt ctg cat tgt      579
Met Ile Lys Ser Val Lys Arg Ala Tyr His Arg Leu Cys Leu His Cys
                175                   180                   185

tct gtg gac cag gag ggc aag tca gtg ctg tcg gaa aaa ttc atc ctg      627
Ser Val Asp Gln Glu Gly Lys Ser Val Leu Ser Glu Lys Phe Ile Leu
                190                   195                   200

aaa gtg agg cca gcc ttc aaa gct gtg cct gtt gtg tct gtg tcc aaa      675
Lys Val Arg Pro Ala Phe Lys Ala Val Pro Val Val Ser Val Ser Lys
                205                   210                   215

gca agc tat ctt ctt agg gaa ggg gaa gaa ttc aca gtg acg tgc aca      723
Ala Ser Tyr Leu Leu Arg Glu Gly Glu Glu Phe Thr Val Thr Cys Thr

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230

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ata aaa gat gtg tct agt tct gtg tac tca acg tgg aaa aga gaa aac			771
Ile Lys Asp Val Ser Ser Ser Val Tyr Ser Thr Trp Lys Arg Glu Asn			
235	240	245	250
agt cag act aaa cta cag gag aaa tat aat agc tgg cat cac ggt gac			819
Ser Gln Thr Lys Leu Gln Glu Lys Tyr Asn Ser Trp His His Gly Asp			
	255	260	265
ttc aat tat gaa cgt cag gca acg ttg act atc agt tca gcg aga gtt			867
Phe Asn Tyr Glu Arg Gln Ala Thr Leu Thr Ile Ser Ser Ala Arg Val			
	270	275	280
aat gat tct gga gtg ttc atg tgt tat gcc aat aat act ttt gga tca			915
Asn Asp Ser Gly Val Phe Met Cys Tyr Ala Asn Asn Thr Phe Gly Ser			
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gca aat gtc aca aca acc ttg gaa gta gta gat aaa gga ttc att aat			963
Ala Asn Val Thr Thr Thr Leu Glu Val Val Asp Lys Gly Phe Ile Asn			
	300	305	310
atc ttc ccc atg ata aac act aca gta ttt gta aac gat gga gaa aat			1011
Ile Phe Pro Met Ile Asn Thr Thr Val Phe Val Asn Asp Gly Glu Asn			
	315	320	325
gta gat ttg att gtt gaa tat gaa gca ttc ccc aaa cct gaa cac cag			1059
Val Asp Leu Ile Val Glu Tyr Glu Ala Phe Pro Lys Pro Glu His Gln			
	335	340	345
cag tgg atc tat atg aac aga acc ttc act gat aaa tgg gaa gat tat			1107
Gln Trp Ile Tyr Met Asn Arg Thr Phe Thr Asp Lys Trp Glu Asp Tyr			
	350	355	360
ccc aag tct gag aat gaa agt aat atc aga tac gta agt gaa ctt cat			1155
Pro Lys Ser Glu Asn Glu Ser Asn Ile Arg Tyr Val Ser Glu Leu His			
	365	370	375
cta acg aga tta aaa ggc acc gaa gga ggc act tac aca ttc cta gtg			1203
Leu Thr Arg Leu Lys Gly Thr Glu Gly Gly Thr Tyr Thr Phe Leu Val			
	380	385	390
tcc aat tct gac gtc aat gct gcc ata gca ttt aat gtt tat gtg aat			1251
Ser Asn Ser Asp Val Asn Ala Ala Ile Ala Phe Asn Val Tyr Val Asn			
	395	400	405
aca aaa cca gaa atc ctg act tac gac agg ctc gtg aat ggc atg ctc			1299
Thr Lys Pro Glu Ile Leu Thr Tyr Asp Arg Leu Val Asn Gly Met Leu			
	415	420	425
caa tgt gtg gca gca gga ttc cca gag ccc aca ata gat tgg tat ttt			1347
Gln Cys Val Ala Ala Gly Phe Pro Glu Pro Thr Ile Asp Trp Tyr Phe			
	430	435	440
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Cys Pro Gly Thr Glu Gln Arg Cys Ser Ala Ser Val Leu Pro Val Asp			
	445	450	455
gtg cag aca cta aac tca tct ggg cca ccg ttt gga aag cta gtg gtt			1443
Val Gln Thr Leu Asn Ser Ser Gly Pro Pro Phe Gly Lys Leu Val Val			
	460	465	470
cag agt tct ata gat tct agt gca ttc aag cac aat ggc acg gtt gaa			1491

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Gln Ser Ser Ile Asp Ser Ser Ala Phe Lys His Asn Gly Thr Val Glu	
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Cys Lys Ala Tyr Asn Asp Val Gly Lys Thr Ser Ala Tyr Phe Asn Phe	
495 500 505	
gca ttt aaa ggt aac aac aaa gag caa atc cat ccc cac acc ctg ttc	1587
Ala Phe Lys Gly Asn Asn Lys Glu Gln Ile His Pro His Thr Leu Phe	
510 515 520	
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Thr Pro Leu Leu Ile Gly Phe Val Ile Val Ala Gly Met Met Cys Ile	
525 530 535	
att gtg atg att ctg acc tac aaa tat tta cag aaa ccc atg tat gaa	1683
Ile Val Met Ile Leu Thr Tyr Lys Tyr Leu Gln Lys Pro Met Tyr Glu	
540 545 550	
gta cag tgg aag gtt gtt gag gag ata aat gga aac aat tat gtt tac	1731
Val Gln Trp Lys Val Val Glu Glu Ile Asn Gly Asn Asn Tyr Val Tyr	
555 560 565 570	
ata gac cca aca caa ctt cct tat gat cac aaa tgg gag ttt ccc aga	1779
Ile Asp Pro Thr Gln Leu Pro Tyr Asp His Lys Trp Glu Phe Pro Arg	
575 580 585	
aac agg ctg agt ttt ggg aaa acc ctg ggt gct gga gct ttc ggg aag	1827
Asn Arg Leu Ser Phe Gly Lys Thr Leu Gly Ala Gly Ala Phe Gly Lys	
590 595 600	
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Val Val Glu Ala Thr Ala Tyr Gly Leu Ile Lys Ser Asp Ala Ala Met	
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Thr Val Ala Val Lys Met Leu Lys Pro Ser Ala His Leu Thr Glu Arg	
620 625 630	
gaa gcc ctc atg tct gaa ctc aaa gtc ctg agt tac ctt ggt aat cac	1971
Glu Ala Leu Met Ser Glu Leu Lys Val Leu Ser Tyr Leu Gly Asn His	
635 640 645 650	
atg aat att gtg aat cta ctt gga gcc tgc acc att gga ggg ccc acc	2019
Met Asn Ile Val Asn Leu Leu Gly Ala Cys Thr Ile Gly Gly Pro Thr	
655 660 665	
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Leu Val Ile Thr Glu Tyr Cys Cys Tyr Gly Asp Leu Leu Asn Phe Leu	
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Arg Arg Lys Arg Asp Ser Phe Ile Cys Ser Lys Gln Glu Asp His Ala	
685 690 695	
gaa gct gca ctt tat aag aat ctt ctg cat tca aag gag tct tcc tgc	2163
Glu Ala Ala Leu Tyr Lys Asn Leu Leu His Ser Lys Glu Ser Ser Cys	
700 705 710	
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Ser Asp Ser Thr Asn Glu Tyr Met Asp Met Lys Pro Gly Val Ser Tyr	
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Val Val Pro Thr Lys Ala Asp Lys Arg Arg Ser Val Arg Ile Gly Ser	
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tac ata gaa aga gat gtg act ccc gcc atc atg gag gat gac gag ttg	2307
Tyr Ile Glu Arg Asp Val Thr Pro Ala Ile Met Glu Asp Asp Glu Leu	
750 755 760	
gcc cta gac tta gaa gac ttg ctg agc ttt tct tac cag gtg gca aag	2355
Ala Leu Asp Leu Glu Asp Leu Leu Ser Phe Ser Tyr Gln Val Ala Lys	
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ggc atg gct ttc ctc gcc tcc aag aat tgt att cac aga gac ttg gca	2403
Gly Met Ala Phe Leu Ala Ser Lys Asn Cys Ile His Arg Asp Leu Ala	
780 785 790	
gcc aga aat atc ctc ctt act cat ggt cgg atc aca aag att tgt gat	2451
Ala Arg Asn Ile Leu Leu Thr His Gly Arg Ile Thr Lys Ile Cys Asp	
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Phe Gly Leu Ala Arg Asp Ile Lys Asn Asp Ser Asn Tyr Val Val Lys	
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gga aac gct cga cta cct gtg aag tgg atg gca cct gaa agc att ttc	2547
Gly Asn Ala Arg Leu Pro Val Lys Trp Met Ala Pro Glu Ser Ile Phe	
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Asn Cys Val Tyr Thr Phe Glu Ser Asp Val Trp Ser Tyr Gly Ile Phe	
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Leu Trp Glu Leu Phe Ser Leu Gly Ser Ser Pro Tyr Pro Gly Met Pro	
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Val Asp Ser Lys Phe Tyr Lys Met Ile Lys Glu Gly Phe Arg Met Leu	
875 880 885 890	
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Ser Pro Glu His Ala Pro Ala Glu Met Tyr Asp Ile Met Lys Thr Cys	
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Trp Asp Ala Asp Pro Leu Lys Arg Pro Thr Phe Lys Gln Ile Val Gln	
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Leu Ile Glu Lys Gln Ile Ser Glu Ser Thr Asn His Ile Tyr Ser Asn	
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Val Arg Ile Asn Ser Val Gly Ser Thr Ala Ser Ser Ser Gln Pro Leu	
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ctt gtg cac gac gat gtc tga gcagaatcag tgtttgggtc acccctccag	2982
Leu Val His Asp Asp Val	
975	

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49321-111.ST25.txt

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Arg Val Gly Asp Glu Ile Arg Leu Leu Cys Thr Asp Pro Gly Phe Val
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Lys Trp Thr Phe Glu Ile Leu Asp Glu Thr Asn Glu Asn Lys Gln Asn
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Glu Trp Ile Thr Glu Lys Ala Glu Ala Thr Asn Thr Gly Lys Tyr Thr
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Cys Thr Asn Lys His Gly Leu Ser Asn Ser Ile Tyr Val Phe Val Arg
 100 105 110

Asp Pro Ala Lys Leu Phe Leu Val Asp Arg Ser Leu Tyr Gly Lys Glu
 115 120 125

Asp Asn Asp Thr Leu Val Arg Cys Pro Leu Thr Asp Pro Glu Val Thr
 130 135 140

Asn Tyr Ser Leu Lys Gly Cys Gln Gly Lys Pro Leu Pro Lys Asp Leu
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Arg Phe Ile Pro Asp Pro Lys Ala Gly Ile Met Ile Lys Ser Val Lys
 165 170 175

Arg Ala Tyr His Arg Leu Cys Leu His Cys Ser Val Asp Gln Glu Gly

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185

180

190

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 210 215 220

Glu Gly Glu Glu Phe Thr Val Thr Cys Thr Ile Lys Asp Val Ser Ser
 225 230 235 240

Ser Val Tyr Ser Thr Trp Lys Arg Glu Asn Ser Gln Thr Lys Leu Gln
 245 250 255

Glu Lys Tyr Asn Ser Trp His His Gly Asp Phe Asn Tyr Glu Arg Gln
 260 265 270

Ala Thr Leu Thr Ile Ser Ser Ala Arg Val Asn Asp Ser Gly Val Phe
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Met Cys Tyr Ala Asn Asn Thr Phe Gly Ser Ala Asn Val Thr Thr Thr
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Leu Glu Val Val Asp Lys Gly Phe Ile Asn Ile Phe Pro Met Ile Asn
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Thr Thr Val Phe Val Asn Asp Gly Glu Asn Val Asp Leu Ile Val Glu
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Tyr Glu Ala Phe Pro Lys Pro Glu His Gln Gln Trp Ile Tyr Met Asn
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Arg Thr Phe Thr Asp Lys Trp Glu Asp Tyr Pro Lys Ser Glu Asn Glu
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Ser Asn Ile Arg Tyr Val Ser Glu Leu His Leu Thr Arg Leu Lys Gly
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 385 390 395 400

Ala Ala Ile Ala Phe Asn Val Tyr Val Asn Thr Lys Pro Glu Ile Leu
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 465 470 475 480

Ser Ala Phe Lys His Asn Gly Thr Val Glu Cys Lys Ala Tyr Asn Asp
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Val Gly Lys Thr Ser Ala Tyr Phe Asn Phe Ala Phe Lys Gly Asn Asn
 500 505 510

Lys Glu Gln Ile His Pro His Thr Leu Phe Thr Pro Leu Leu Ile Gly
 515 520 525

Phe Val Ile Val Ala Gly Met Met Cys Ile Ile Val Met Ile Leu Thr
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Glu Glu Ile Asn Gly Asn Asn Tyr Val Tyr Ile Asp Pro Thr Gln Leu
 565 570 575

Pro Tyr Asp His Lys Trp Glu Phe Pro Arg Asn Arg Leu Ser Phe Gly
 580 585 590

Lys Thr Leu Gly Ala Gly Ala Phe Gly Lys Val Val Glu Ala Thr Ala
 595 600 605

Tyr Gly Leu Ile Lys Ser Asp Ala Ala Met Thr Val Ala Val Lys Met
 610 615 620

Leu Lys Pro Ser Ala His Leu Thr Glu Arg Glu Ala Leu Met Ser Glu
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Leu Lys Val Leu Ser Tyr Leu Gly Asn His Met Asn Ile Val Asn Leu
 645 650 655

Leu Gly Ala Cys Thr Ile Gly Gly Pro Thr Leu Val Ile Thr Glu Tyr
 660 665 670

Cys Cys Tyr Gly Asp Leu Leu Asn Phe Leu Arg Arg Lys Arg Asp Ser
 675 680 685

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Phe Ile Cys Ser Lys Gln Glu Asp His Ala Glu Ala Ala Leu Tyr Lys
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Asn Leu Leu His Ser Lys Glu Ser Ser Cys Ser Asp Ser Thr Asn Glu
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Tyr Met Asp Met Lys Pro Gly Val Ser Tyr Val Val Pro Thr Lys Ala
 725 730 735

Asp Lys Arg Arg Ser Val Arg Ile Gly Ser Tyr Ile Glu Arg Asp Val
 740 745 750

Thr Pro Ala Ile Met Glu Asp Asp Glu Leu Ala Leu Asp Leu Glu Asp
 755 760 765

Leu Leu Ser Phe Ser Tyr Gln Val Ala Lys Gly Met Ala Phe Leu Ala
 770 775 780

Ser Lys Asn Cys Ile His Arg Asp Leu Ala Ala Arg Asn Ile Leu Leu
 785 790 795 800

Thr His Gly Arg Ile Thr Lys Ile Cys Asp Phe Gly Leu Ala Arg Asp
 805 810 815

Ile Lys Asn Asp Ser Asn Tyr Val Val Lys Gly Asn Ala Arg Leu Pro
 820 825 830

Val Lys Trp Met Ala Pro Glu Ser Ile Phe Asn Cys Val Tyr Thr Phe
 835 840 845

Glu Ser Asp Val Trp Ser Tyr Gly Ile Phe Leu Trp Glu Leu Phe Ser
 850 855 860

Leu Gly Ser Ser Pro Tyr Pro Gly Met Pro Val Asp Ser Lys Phe Tyr
 865 870 875 880

Lys Met Ile Lys Glu Gly Phe Arg Met Leu Ser Pro Glu His Ala Pro
 885 890 895

Ala Glu Met Tyr Asp Ile Met Lys Thr Cys Trp Asp Ala Asp Pro Leu
 900 905 910

Lys Arg Pro Thr Phe Lys Gln Ile Val Gln Leu Ile Glu Lys Gln Ile
 915 920 925

Ser Glu Ser Thr Asn His Ile Tyr Ser Asn Leu Ala Asn Cys Ser Pro
 930 935 940

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Asn Arg Gln Lys Pro Val Val Asp His Ser Val Arg Ile Asn Ser Val
 945 950 955 960

Gly Ser Thr Ala Ser Ser Ser Gln Pro Leu Leu Val His Asp Asp Val
 965 970 975

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49321-111.ST25.txt

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<210> 25

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<212> DNA

<213> Homo sapiens

<220>

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<222> (274)..(1527)

<400> 25

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cacccttggc attgcttggt ggagactgag ataccctgtgc tccgctcgcc tccttggttg      180
aagatttctc cttccctcac gtgatttgag ccccggtttt attttctgtg agccacgtcc      240
tcctcgagcg gggtaaatct ggcaaaagga gtg atg cgc ttc gcc tgg acc gtg      294
                               Met Arg Phe Ala Trp Thr Val
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ctc ctg ctc ggg cct ttg cag ctc tgc gcg cta gtg cac tgc gcc cct      342
Leu Leu Leu Gly Pro Leu Gln Leu Cys Ala Leu Val His Cys Ala Pro
                               10                               15                               20

ccc gcc gcc ggc caa cag cag ccc ccg cgc gag ccg ccg gcg gct ccg      390
Pro Ala Ala Gly Gln Gln Gln Pro Pro Arg Glu Pro Pro Ala Ala Pro
                               25                               30                               35

ggc gcc tgg cgc cag cag atc caa tgg gag aac aac ggg cag gtg ttc      438
Gly Ala Trp Arg Gln Gln Ile Gln Trp Glu Asn Asn Gly Gln Val Phe
40                               45                               50                               55

agc ttg ctg agc ctg ggc tca cag tac cag cct cag cgc cgc ccg gac      486
Ser Leu Leu Ser Leu Gly Ser Gln Tyr Gln Pro Gln Arg Arg Arg Asp
                               60                               65                               70

ccg ggc gcc gcc gtc cct ggt gca gcc aac gcc tcc gcc cag cag ccc      534
Pro Gly Ala Ala Val Pro Gly Ala Ala Asn Ala Ser Ala Gln Gln Pro
                               75                               80                               85

cgc act ccg atc ctg ctg atc cgc gac aac cgc acc gcc gcg gcg cga      582
Arg Thr Pro Ile Leu Leu Ile Arg Asp Asn Arg Thr Ala Ala Ala Arg
                               90                               95                               100

acg ccg acg gcc ggc tca tct gga gtc acc gct ggc cgc ccc agg ccc      630
Thr Arg Thr Ala Gly Ser Ser Gly Val Thr Ala Gly Arg Pro Arg Pro
105                               110                               115

acc gcc cgt cac tgg ttc caa gct ggc tac tcg aca tct aga gcc cgc      678
Thr Ala Arg His Trp Phe Gln Ala Gly Tyr Ser Thr Ser Arg Ala Arg
120                               125                               130                               135

gaa gct ggc gcc tcg cgc gcg gag aac cag aca gcg ccg gga gaa gtt      726
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140                               145                               150

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49321-111.ST25.txt

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Gly Asp Asp Pro Tyr Asn Pro Tyr Lys Tyr Ser Asp Asp Asn Pro Tyr	
170 175 180	
tac aac tac tac gat act tat gaa agg ccc aga cct ggg ggc agg tac	870
Tyr Asn Tyr Tyr Asp Thr Tyr Glu Arg Pro Arg Pro Gly Gly Arg Tyr	
185 190 195	
cgg ccc gga tac ggc act ggc tac ttc cag tac ggt ctc cca gac ctg	918
Arg Pro Gly Tyr Gly Thr Gly Tyr Phe Gln Tyr Gly Leu Pro Asp Leu	
200 205 210 215	
gtg gcc gac ccc tac tac atc cag gcg tcc acg tac gtg cag aag atg	966
Val Ala Asp Pro Tyr Ile Gln Ala Ser Thr Tyr Val Gln Lys Met	
220 225 230	
tcc atg tac aac ctg aga tgc gcg gcg gag gaa aac tgt ctg gcc agt	1014
Ser Met Tyr Asn Leu Arg Cys Ala Ala Glu Glu Asn Cys Leu Ala Ser	
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aca gca tac agg gca gat gtc aga gat tat gat cac agg gtg ctg ctc	1062
Thr Ala Tyr Arg Ala Asp Val Arg Asp Tyr Asp His Arg Val Leu Leu	
250 255 260	
aga ttt ccc caa aga gtg aaa aac caa ggg aca tca gat ttc tta ccc	1110
Arg Phe Pro Gln Arg Val Lys Asn Gln Gly Thr Ser Asp Phe Leu Pro	
265 270 275	
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Ser Arg Pro Arg Tyr Ser Trp Glu Trp His Ser Cys His Gln His Tyr	
280 285 290 295	
cac agt atg gat gag ttt agc cac tat gac ctg ctt gat gcc aac acc	1206
His Ser Met Asp Glu Phe Ser His Tyr Asp Leu Leu Asp Ala Asn Thr	
300 305 310	
cag agg aga gtg gct gaa ggc cac aaa gca agt ttc tgt ctt gaa gac	1254
Gln Arg Arg Val Ala Glu Gly His Lys Ala Ser Phe Cys Leu Glu Asp	
315 320 325	
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Thr Ser Cys Asp Tyr Gly Tyr His Arg Arg Phe Ala Cys Thr Ala His	
330 335 340	
aca cag gga ttg agt cct ggc tgt tat gat acc tat ggt gca gac ata	1350
Thr Gln Gly Leu Ser Pro Gly Cys Tyr Asp Thr Tyr Gly Ala Asp Ile	
345 350 355	
gac tgc cag tgg att gat att aca gat gta aaa cct gga aac tat atc	1398
Asp Cys Gln Trp Ile Asp Ile Thr Asp Val Lys Pro Gly Asn Tyr Ile	
360 365 370 375	
cta aag gtc agt gta aac ccc agc tac ctg gtt cct gaa tct gac tat	1446
Leu Lys Val Ser Val Asn Pro Ser Tyr Leu Val Pro Glu Ser Asp Tyr	
380 385 390	
acc aac aat gtt gtg cgc tgt gac att cgc tac aca gga cat cat gcg	1494
Thr Asn Asn Val Val Arg Cys Asp Ile Arg Tyr Thr Gly His His Ala	
395 400 405	

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tat gcc tca ggc tgc aca att tca ccg tat tag aaggcaaagc aaaactccca 1547
 Tyr Ala Ser Gly Cys Thr Ile Ser Pro Tyr
 410 415

atggataaat cagtgcctgg tgttctgaag tgggaaaaaa tagactaact tcagtaggat 1607
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 <212> PRT
 <213> Homo sapiens

<400> 26

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 35 40 45

Glu Asn Asn Gly Gln Val Phe Ser Leu Leu Ser Leu Gly Ser Gln Tyr
 50 55 60

Gln Pro Gln Arg Arg Arg Asp Pro Gly Ala Ala Val Pro Gly Ala Ala
 65 70 75 80

Asn Ala Ser Ala Gln Gln Pro Arg Thr Pro Ile Leu Leu Ile Arg Asp
 85 90 95

Asn Arg Thr Ala Ala Ala Arg Thr Arg Thr Ala Gly Ser Ser Gly Val
 100 105 110

Thr Ala Gly Arg Pro Arg Pro Thr Ala Arg His Trp Phe Gln Ala Gly
 115 120 125

Tyr Ser Thr Ser Arg Ala Arg Glu Ala Gly Ala Ser Arg Ala Glu Asn
 130 135 140

49321-111.ST25.txt

Gln Thr Ala Pro Gly Glu Val Pro Ala Leu Ser Asn Leu Arg Pro Pro
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Ser Arg Val Asp Gly Met Val Gly Asp Asp Pro Tyr Asn Pro Tyr Lys
 165 170 175

Tyr Ser Asp Asp Asn Pro Tyr Tyr Asn Tyr Tyr Asp Thr Tyr Glu Arg
 180 185 190

Pro Arg Pro Gly Gly Arg Tyr Arg Pro Gly Tyr Gly Thr Gly Tyr Phe
 195 200 205

Gln Tyr Gly Leu Pro Asp Leu Val Ala Asp Pro Tyr Tyr Ile Gln Ala
 210 215 220

Ser Thr Tyr Val Gln Lys Met Ser Met Tyr Asn Leu Arg Cys Ala Ala
 225 230 235 240

Glu Glu Asn Cys Leu Ala Ser Thr Ala Tyr Arg Ala Asp Val Arg Asp
 245 250 255

Tyr Asp His Arg Val Leu Leu Arg Phe Pro Gln Arg Val Lys Asn Gln
 260 265 270

Gly Thr Ser Asp Phe Leu Pro Ser Arg Pro Arg Tyr Ser Trp Glu Trp
 275 280 285

His Ser Cys His Gln His Tyr His Ser Met Asp Glu Phe Ser His Tyr
 290 295 300

Asp Leu Leu Asp Ala Asn Thr Gln Arg Arg Val Ala Glu Gly His Lys
 305 310 315 320

Ala Ser Phe Cys Leu Glu Asp Thr Ser Cys Asp Tyr Gly Tyr His Arg
 325 330 335

Arg Phe Ala Cys Thr Ala His Thr Gln Gly Leu Ser Pro Gly Cys Tyr
 340 345 350

Asp Thr Tyr Gly Ala Asp Ile Asp Cys Gln Trp Ile Asp Ile Thr Asp
 355 360 365

Val Lys Pro Gly Asn Tyr Ile Leu Lys Val Ser Val Asn Pro Ser Tyr
 370 375 380

Leu Val Pro Glu Ser Asp Tyr Thr Asn Asn Val Val Arg Cys Asp Ile
 385 390 395 400

49321-111.ST25.txt

Arg Tyr Thr Gly His His Ala Tyr Ala Ser Gly Cys Thr Ile Ser Pro
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Tyr

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 Met Gln Ser Val Gln Ser Thr Ser Phe Cys Leu Arg Lys
 1 5 10
 cag tgc ctt tgc ctg acc ttc ctg ctt ctc cat ctc ctg gga cag gtc 159
 Gln Cys Leu Cys Leu Thr Phe Leu Leu Leu His Leu Leu Gly Gln Val
 15 20 25
 gct gcg act cag cgc tgc cct ccc cag tgc ccg ggc cgg tgc cct gcg 207
 Ala Ala Thr Gln Arg Cys Pro Pro Gln Cys Pro Gly Arg Cys Pro Ala
 30 35 40 45
 acg ccg ccg acc tgc gcc ccc ggg gtg cgc gcg gtg ctg gac ggc tgc 255
 Thr Pro Pro Thr Cys Ala Pro Gly Val Arg Ala Val Leu Asp Gly Cys
 50 55 60
 tca tgc tgt ctg gtg tgt gcc cgc cag cgt ggc gag agc tgc tca gat 303
 Ser Cys Cys Leu Val Cys Ala Arg Gln Arg Gly Glu Ser Cys Ser Asp
 65 70 75
 ctg gag cca tgc gac gag agc agt ggc ctc tac tgt gat cgc agc gcg 351
 Leu Glu Pro Cys Asp Glu Ser Ser Gly Leu Tyr Cys Asp Arg Ser Ala
 80 85 90
 gac ccc agc aac cag act ggc atc tgc acg gcg gta gag gga gat aac 399
 Asp Pro Ser Asn Gln Thr Gly Ile Cys Thr Ala Val Glu Gly Asp Asn
 95 100 105
 tgt gtg ttc gat ggg gtc atc tac cgc agt gga gag aaa ttt cag cca 447
 Cys Val Phe Asp Gly Val Ile Tyr Arg Ser Gly Glu Lys Phe Gln Pro
 110 115 120 125
 agc tgc aaa ttc cag tgc acc tgc aga gat ggg cag att ggc tgt gtg 495
 Ser Cys Lys Phe Gln Cys Thr Cys Arg Asp Gly Gln Ile Gly Cys Val
 130 135 140
 ccc cgc tgt cag ctg gat gtg cta ctg cct gag cct aac tgc cca gct 543
 Pro Arg Cys Gln Leu Asp Val Leu Leu Pro Glu Pro Asn Cys Pro Ala
 145 150 155
 cca aga aaa gtt gag gtg cct gga gag tgc tgt gaa aag tgg atc tgt 591

49321-111.ST25.txt

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Gly Pro Asp Glu Glu Asp Ser Leu Gly Gly Leu Thr Leu Ala Ala Tyr		
175	180 185	
agg cca gaa gcc acc cta gga gta gaa gtc tct gac tca agt gtc aac		687
Arg Pro Glu Ala Thr Leu Gly Val Glu Val Ser Asp Ser Ser Val Asn		
190	195 200 205	
tgc att gaa cag acc aca gag tgg aca gca tgc tcc aag agc tgt ggt		735
Cys Ile Glu Gln Thr Thr Glu Trp Thr Ala Cys Ser Lys Ser Cys Gly		
	210 215 220	
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Met Gly Phe Ser Thr Arg Val Thr Asn Arg Asn Arg Gln Cys Glu Met		
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ctg aaa cag act cgg ctc tgc atg gtg cgg ccc tgt gaa caa gag cca		831
Leu Lys Gln Thr Arg Leu Cys Met Val Arg Pro Cys Glu Gln Glu Pro		
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gag cag cca aca gat aag aaa gga aaa aag tgt ctc cgc acc aag aag		879
Glu Gln Pro Thr Asp Lys Lys Gly Lys Lys Cys Leu Arg Thr Lys Lys		
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tca ctc aaa gcc atc cac ctg cag ttc aag aac tgc acc agc ctg cac		927
Ser Leu Lys Ala Ile His Leu Gln Phe Lys Asn Cys Thr Ser Leu His		
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acc tac aag ccc agg ttc tgt ggg gtc tgc agt gat ggc cgc tgc tgc		975
Thr Tyr Lys Pro Arg Phe Cys Gly Val Cys Ser Asp Gly Arg Cys Cys		
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act ccc cac aat acc aaa acc atc cag gca gag ttt cag tgc tcc cca		1023
Thr Pro His Asn Thr Lys Thr Ile Gln Ala Glu Phe Gln Cys Ser Pro		
	305 310 315	
ggg caa ata gtc aag aag cca gtg atg gtc att ggg acc tgc acc tgt		1071
Gly Gln Ile Val Lys Lys Pro Val Met Val Ile Gly Thr Cys Thr Cys		
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His Thr Asn Cys Pro Lys Asn Asn Glu Ala Phe Leu Gln Glu Leu Glu		
	335 340 345	
ctg aag act acc aga ggg aaa atg taa cctatcactc aagaagcaca		1166
Leu Lys Thr Thr Arg Gly Lys Met		
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gaagaatcac gatttcaccc ttgaatcccta tgtattttcc taatgtgatc atatgaggac		1286
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tttctataaa tttaagaaaa caagtatata atttactttg tagactgttt cacattgcac		1466
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49321-111.ST25.txt

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caccacacgt gttccgcttc tctcttttaa agtatttata aaaatataaa ttgtacattt 2306
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Gln Arg Cys Pro Pro Gln Cys Pro Gly Arg Cys Pro Ala Thr Pro Pro
 35 40 45

Thr Cys Ala Pro Gly Val Arg Ala Val Leu Asp Gly Cys Ser Cys Cys
 50 55 60

Leu Val Cys Ala Arg Gln Arg Gly Glu Ser Cys Ser Asp Leu Glu Pro
 65 70 75 80

Cys Asp Glu Ser Ser Gly Leu Tyr Cys Asp Arg Ser Ala Asp Pro Ser
 85 90 95

Asn Gln Thr Gly Ile Cys Thr Ala Val Glu Gly Asp Asn Cys Val Phe

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 130 135 140
 Gln Leu Asp Val Leu Leu Pro Glu Pro Asn Cys Pro Ala Pro Arg Lys
 145 150 155 160
 Val Glu Val Pro Gly Glu Cys Cys Glu Lys Trp Ile Cys Gly Pro Asp
 165 170 175
 Glu Glu Asp Ser Leu Gly Gly Leu Thr Leu Ala Ala Tyr Arg Pro Glu
 180 185 190
 Ala Thr Leu Gly Val Glu Val Ser Asp Ser Ser Val Asn Cys Ile Glu
 195 200 205
 Gln Thr Thr Glu Trp Thr Ala Cys Ser Lys Ser Cys Gly Met Gly Phe
 210 215 220
 Ser Thr Arg Val Thr Asn Arg Asn Arg Gln Cys Glu Met Leu Lys Gln
 225 230 235 240
 Thr Arg Leu Cys Met Val Arg Pro Cys Glu Gln Glu Pro Glu Gln Pro
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 Thr Asp Lys Lys Gly Lys Lys Cys Leu Arg Thr Lys Lys Ser Leu Lys
 260 265 270
 Ala Ile His Leu Gln Phe Lys Asn Cys Thr Ser Leu His Thr Tyr Lys
 275 280 285
 Pro Arg Phe Cys Gly Val Cys Ser Asp Gly Arg Cys Cys Thr Pro His
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 Asn Thr Lys Thr Ile Gln Ala Glu Phe Gln Cys Ser Pro Gly Gln Ile
 305 310 315 320
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 Cys Pro Lys Asn Asn Glu Ala Phe Leu Gln Glu Leu Glu Leu Lys Thr
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49321-111.ST25.txt

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Leu Gly Leu Leu Ala Ala Met Gly Ala Val Ala Gly Gln Glu Asp Gly
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Phe Glu Gly Thr Glu Glu Gly Ser Pro Arg Glu Phe Ile Tyr Leu Asn
30 35 40

agg tac aag cgg gcg ggc gag tcc cag gac aag tgc acc tac acc ttc 195
Arg Tyr Lys Arg Ala Gly Glu Ser Gln Asp Lys Cys Thr Tyr Thr Phe
45 50 55

att gtg ccc cag cag cgg gtc acg ggt gcc atc tgc gtc aac tcc aag 243
Ile Val Pro Gln Gln Arg Val Thr Gly Ala Ile Cys Val Asn Ser Lys
60 65 70

gag cct gag gtg ctt ctg gag aac cga gtg cat aag cag gag cta gag 291
Glu Pro Glu Val Leu Leu Glu Asn Arg Val His Lys Gln Glu Leu Glu
75 80 85 90

ctg ctc aac aat gag ctg ctc aag cag aag cgg cag atc gag aca ctg 339
Leu Leu Asn Asn Glu Leu Leu Lys Gln Lys Arg Gln Ile Glu Thr Leu
95 100 105

cag cag ctg gtg gag gtg gac ggc ggc att gtg agc gag gtg aag ctg 387
Gln Gln Leu Val Glu Val Asp Gly Gly Ile Val Ser Glu Val Lys Leu
110 115 120

ctg cgc aag gag agc cgc aac atg aac tcg cgg gtc acg cag ctc tac 435
Leu Arg Lys Glu Ser Arg Asn Met Asn Ser Arg Val Thr Gln Leu Tyr
125 130 135

atg cag ctc ctg cac gag atc atc cgc aag cgg gac aac gcg ttg gag 483
Met Gln Leu Leu His Glu Ile Ile Arg Lys Arg Asp Asn Ala Leu Glu
140 145 150

ctc tcc cag ctg gag aac agg atc ctg aac cag aca gcc gac atg ctg 531
Leu Ser Gln Leu Glu Asn Arg Ile Leu Asn Gln Thr Ala Asp Met Leu
155 160 165 170

cag ctg gcc agc aag tac aag gac ctg gag cac aag tac cag cac ctg 579
Gln Leu Ala Ser Lys Tyr Lys Asp Leu Glu His Lys Tyr Gln His Leu
175 180 185

49321-111.ST25.txt

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gct gcc ccg ccc cgg gtc tac caa cca ccc acc tac aac cgc atc atc Ala Ala Pro Pro Arg Val Tyr Gln Pro Pro Thr Tyr Asn Arg Ile Ile 220 225 230	723
aac cag atc tct acc aac gag atc cag agt gac cag aac ctg aag gtg Asn Gln Ile Ser Thr Asn Glu Ile Gln Ser Asp Gln Asn Leu Lys Val 235 240 245 250	771
ctg cca ccc cct ctg ccc act atg ccc act ctc acc agc ctc cca tct Leu Pro Pro Pro Leu Pro Thr Met Pro Thr Leu Thr Ser Leu Pro Ser 255 260 265	819
tcc acc gac aag ccg tcg ggc cca tgg aga gac tgc ctg cag gcc ctg Ser Thr Asp Lys Pro Ser Gly Pro Trp Arg Asp Cys Leu Gln Ala Leu 270 275 280	867
gag gat ggc cac gac acc agc tcc atc tac ctg gtg aag ccg gag aac Glu Asp Gly His Asp Thr Ser Ser Ile Tyr Leu Val Lys Pro Glu Asn 285 290 295	915
acc aac cgc ctc atg cag gtg tgg tgc gac cag aga cac gac ccc ggg Thr Asn Arg Leu Met Gln Val Trp Cys Asp Gln Arg His Asp Pro Gly 300 305 310	963
ggc tgg acc gtc atc cag aga cgc ctg gat ggc tct gtt aac ttc ttc Gly Trp Thr Val Ile Gln Arg Arg Leu Asp Gly Ser Val Asn Phe Phe 315 320 325 330	1011
agg aac tgg gag acg tac aag caa ggg ttt ggg aac att gat ggc gaa Arg Asn Trp Glu Thr Tyr Lys Gln Gly Phe Gly Asn Ile Asp Gly Glu 335 340 345	1059
tac tgg ctg ggc ctg gag aac att tac tgg ctg acg aac caa ggc aac Tyr Trp Leu Gly Leu Glu Asn Ile Tyr Trp Leu Thr Asn Gln Gly Asn 350 355 360	1107
tac aaa ctc ctg gtg acc atg gag gac tgg tcc ggc cgc aaa gtc ttt Tyr Lys Leu Leu Val Thr Met Glu Asp Trp Ser Gly Arg Lys Val Phe 365 370 375	1155
gca gaa tac gcc agt ttc cgc ctg gaa cct gag agc gag tat tat aag Ala Glu Tyr Ala Ser Phe Arg Leu Glu Pro Glu Ser Glu Tyr Tyr Lys 380 385 390	1203
ctg ccg ctg ggg cgc tac cat ggc aat gcg ggt gac tcc ttt aca tgg Leu Arg Leu Gly Arg Tyr His Gly Asn Ala Gly Asp Ser Phe Thr Trp 395 400 405 410	1251
cac aac ggc aag cag ttc acc acc ctg gac aga gat cat gat gtc tac His Asn Gly Lys Gln Phe Thr Thr Leu Asp Arg Asp His Asp Val Tyr 415 420 425	1299
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tgt gcc cac tcc aac ctc aac ggg gtc tgg tac cgc ggg ggc cat tac 1395
 Cys Ala His Ser Asn Leu Asn Gly Val Trp Tyr Arg Gly Gly His Tyr
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cgg agc cgc tac cag gac gga gtc tac tgg gct gag ttc cga gga ggc 1443
 Arg Ser Arg Tyr Gln Asp Gly Val Tyr Trp Ala Glu Phe Arg Gly Gly
 460 465 470

tct tac tca ctc aag aaa gtg gtg atg atg atc cga ccg aac ccc aac 1491
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 Thr Phe His

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Gly Ser Pro Arg Glu Phe Ile Tyr Leu Asn Arg Tyr Lys Arg Ala Gly
 35 40 45

Glu Ser Gln Asp Lys Cys Thr Tyr Thr Phe Ile Val Pro Gln Gln Arg
 50 55 60

Val Thr Gly Ala Ile Cys Val Asn Ser Lys Glu Pro Glu Val Leu Leu
 65 70 75 80

Glu Asn Arg Val His Lys Gln Glu Leu Glu Leu Leu Asn Asn Glu Leu
 85 90 95

Leu Lys Gln Lys Arg Gln Ile Glu Thr Leu Gln Gln Leu Val Glu Val
 100 105 110

Asp Gly Gly Ile Val Ser Glu Val Lys Leu Leu Arg Lys Glu Ser Arg
 115 120 125

Asn Met Asn Ser Arg Val Thr Gln Leu Tyr Met Gln Leu Leu His Glu
 130 135 140

Ile Ile Arg Lys Arg Asp Asn Ala Leu Glu Leu Ser Gln Leu Glu Asn
 145 150 155 160

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Arg Ile Leu Asn Gln Thr Ala Asp Met Leu Gln Leu Ala Ser Lys Tyr
 165 170 175

Lys Asp Leu Glu His Lys Tyr Gln His Leu Ala Thr Leu Ala His Asn
 180 185 190

Gln Ser Glu Ile Ile Ala Gln Leu Glu Glu His Cys Gln Arg Val Pro
 195 200 205

Ser Ala Arg Pro Val Pro Gln Pro Pro Pro Ala Ala Pro Pro Arg Val
 210 215 220

Tyr Gln Pro Pro Thr Tyr Asn Arg Ile Ile Asn Gln Ile Ser Thr Asn
 225 230 235 240

Glu Ile Gln Ser Asp Gln Asn Leu Lys Val Leu Pro Pro Pro Leu Pro
 245 250 255

Thr Met Pro Thr Leu Thr Ser Leu Pro Ser Ser Thr Asp Lys Pro Ser
 260 265 270

Gly Pro Trp Arg Asp Cys Leu Gln Ala Leu Glu Asp Gly His Asp Thr
 275 280 285

Ser Ser Ile Tyr Leu Val Lys Pro Glu Asn Thr Asn Arg Leu Met Gln
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Val Trp Cys Asp Gln Arg His Asp Pro Gly Gly Trp Thr Val Ile Gln
 305 310 315 320

Arg Arg Leu Asp Gly Ser Val Asn Phe Phe Arg Asn Trp Glu Thr Tyr
 325 330 335

Lys Gln Gly Phe Gly Asn Ile Asp Gly Glu Tyr Trp Leu Gly Leu Glu
 340 345 350

Asn Ile Tyr Trp Leu Thr Asn Gln Gly Asn Tyr Lys Leu Leu Val Thr
 355 360 365

Met Glu Asp Trp Ser Gly Arg Lys Val Phe Ala Glu Tyr Ala Ser Phe
 370 375 380

Arg Leu Glu Pro Glu Ser Glu Tyr Tyr Lys Leu Arg Leu Gly Arg Tyr
 385 390 395 400

His Gly Asn Ala Gly Asp Ser Phe Thr Trp His Asn Gly Lys Gln Phe

405 49321-111.ST25.txt 410 415

Thr Thr Leu Asp Arg Asp His Asp Val Tyr Thr Gly Asn Cys Ala His
420 425 430

Tyr Gln Lys Gly Gly Trp Trp Tyr Asn Ala Cys Ala His Ser Asn Leu
435 440 445

Asn Gly Val Trp Tyr Arg Gly Gly His Tyr Arg Ser Arg Tyr Gln Asp
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Gly Val Tyr Trp Ala Glu Phe Arg Gly Gly Ser Tyr Ser Leu Lys Lys
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